

What is claimed is:

1. A cubic gel precursor comprising:

(A) an encapsulating compound,

(B) an amphiphile capable of forming a cubic liquid crystalline phase, and optionally

(C) a solvent,

wherein ingredients (A), (B), and optionally (C) are present in mass fractions relative to each other such that

$$1.0 = a + b + c$$

wherein a is the mass fraction of ingredient (A), b is the mass fraction of ingredient (B), and c is the mass fraction of ingredient (C), and wherein $1.0 > a > 0$, $1.0 > b > 0$, $1.0 > c \geq 0$; and with the proviso that a, b, and c do not fall within a cubic liquid crystalline phase region on a phase diagram representing phase behavior of ingredients (A), (B), and (C).

2. The precursor of claim 1, wherein $0.75 \geq a \geq 0.5$, $0.5 \geq b \geq 0.25$, and $0.2 \geq c \geq 0$.

3. The precursor of claim 1, wherein said encapsulating compound is selected from the group consisting of starch, cyclodextrin, dextran, and combinations thereof.

4. The precursor of claim 1, wherein said encapsulating compound further comprises (D) a hydrotrope.

5. The precursor of claim 4, wherein said hydrotrope is an active compound.

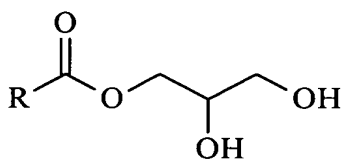
6. The precursor of claim 4, wherein said hydrotrope is selected from the group consisting of low molecular weight alcohols; polyols; alcohol ethoxylates; surfactants derived from mono- and poly- saccharides; copolymers of ethylene oxide and propylene oxide; fatty acid ethoxylates; sorbitan derivatives; sodium butyrate; Poloxamer 407;

Polyethylene glycol 400; dimethyl sulfoxide; sodium toluene sulfonate; nicotinamide; procaine hydrogen chloride and the ethoxylated derivatives thereof; ethylene glycol, sodium alkanoates, sodium alkane sulfonates, Resorcinol, Pyrogallol, PABA hydrogen chloride, sodium p-bromobenzene sulfonate, isonicotinic acid, sodium 4-picolinate, sodium 3-hydroxy-2-naphthlate, Sodium xylene sulfonate, sodium cinnamate, sodium benzene disulfonate, sodium p-toluenesulfonate, sodium salicylate, sodium benzene sulfonate, sodium benzoate, sodium cumene sulfonate, propylene glycol, glycerol, and polyglyceryl esters, caffeine, sodium butyrate; and combinations thereof.

7. The precursor of claim 1, wherein said precursor further comprises a hydrotrope.

8. The precursor of claim 1, wherein said amphiphile is selected from the group consisting of 3,7,11,15-tetramethyl-1,2,3-hexadecanetriol, phytantriol, N-2-alkoxycarbonyl derivatives of N-methylglucamine, unsaturated fatty acid monoglycerides, and combinations thereof.

9. The precursor of claim 1, wherein said amphiphile is a monoglyceride having the formula:



, wherein R is selected from the group consisting of monovalent hydrocarbon groups of 6 to 22 carbon atoms, and monovalent halogenated hydrocarbon groups of 6 to 22 carbon atoms.

10. The precursor of claim 9, wherein said amphiphile is selected from the group consisting of glycerol monooleate, glycerol monostearate, monolinolein, ethoxylated alcohol surfactants, and combinations thereof.

11. The precursor of claim 1, wherein said solvent is selected from the group consisting of water, glycerol, glycols, formamides, ethylammonium nitrate, and combinations thereof.

12. The precursor of claim 11, wherein said glycol is selected from the group consisting of ethylene glycol, polyethylene glycol, and combinations thereof.

13. The precursor of Claim 1 further comprising:
(E) an active ingredient.

14. The precursor of Claim 13 wherein said active ingredient is selected from the group consisting of proteins, amino acids, vitamins, anti-cancer drugs, lung surfactant, omega-3 fatty acids, ethyl oleate, monolinoleic acid, caffeine, ephedrine, ketoprofen, metronidazole, acetyl salicylic acid, clotrimazole, vitamin E, insulin, lidocaine, hydrochloride, nitroglycerin, prilocaine, tetracycline hydrochloride, Benzylpenicillin, acyclovir, guaifenesin, melatonin, metronidazole, phenylpropanolamine, pseudophedrine hydrochloride, timolol maleate, acyclovir, hydrocortisone, minoxidil, sildenafil citrate, eflornithine HCl, zinc pyrithione, niacinamide, flavor oils, antibiotics, vitamins, fatty acids, tracer materials for diagnostic tests, pesticides, organophosphates, non-organophosphates, herbicides, and combinations thereof.

15. The precursor of Claim 14 wherein said organophosphate is diazinon.

16. The precursor of Claim 14 wherein said non-organophosphate is selected from the group consisting of diclofop-methyl, terrazole, vinclozolin, atrazine, oxamyl, propargite, triallate, and combinations thereof.

17. The precursor of Claim 14 wherein said herbicide is selected from the group consisting of atrazine, nicosulfuron, carfentrazone, imazapyr, benefin, acifluorfen, and

combinations thereof.

18. A method of making the precursor of claim 1 comprising the steps of:

(A) dissolving an encapsulating compound in a solvent;

(B) adding an amphiphile;

(C) mixing said encapsulating compound and said amphiphile, wherein steps (A), (B), and (C) are performed in any order;

(D) atomizing said mixture; and,

(E) drying said mixture.

19. A method of making the precursor of Claim 18 comprising the additional step of:

(F) adding a hydrotrope prior to step (D).

20. The method of making the precursor of Claim 18, wherein step (E) is carried out by a process selected from the group consisting of freeze drying, spray drying, fluidization, complex coacervate formation, co-extrusion and combinations thereof.

21. The method of making the precursor of Claim 18 comprising the additional step of:

(G) adding an active ingredient prior to step (D).

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